

## **Measuring University Students' Perception of Self-Assessment and its Effect on their Critical Thinking Learning Style**

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#### **KEY WORDS**

Critical thinking, self-assessment, opportunity, challenges, learning process

#### **ABSTRACT**

The importance of self-assessment and critical thinking in students' learning process is well established, however, few studies have evaluated the perceptions of university students regarding the effects of self-assessment on their critical thinking learning styles. This study aimed to measure the perceptions of university students about the effects of self-assessment on their critical thinking learning style. By using a quantitative descriptive research design, data were collected from 243 students enrolled in BS education program at university of Malakand, Khyber Pakhtunkhwa, Pakistan. The data from the sampled group was measured through self-developed questionnaire comprising 24 items covering different aspect of critical thinking learning style and self-assessment. The questionnaire was pilot tested and after the estimation of reliability and validity the data were collected from the sampled group. Descriptive and inferential statistical techniques such as Mean scores, standard deviations and Chi-square test were used for the analysis of data. The collected data were analyzed by using SPSS version 20. The major findings of the study suggested that critical thinking helps students improve learning and cultivates among them the ability of making choices and guides them to understand problems. It was confirmed that self-

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assessment improves the understanding of students to identify and solve their learning problems. The students strongly agreed that self-assessment promoted their understanding of course content. It is suggested that future research may use the results of the study as a basis for improving the critical learning outcomes of students and incorporate self-assessment as a technique in the teaching process.

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## **Introduction**

Students' self-assessment of knowledge and skills acquisition are important domains of learning in education (Zheng, Wang & Chai, 2021). Through this, students not only gain the ability to critically evaluate their own performance but also get their choices recognized (Andrade, 2019). Self-assessment provides ample opportunities to students to get awareness about their potentials and weakness in the process of learning. They compare their performance with others and with the prevailing standards. In this way, ultimately, they improve their weakness to reach the maximum degree of development (Antón-Sancho, Vergara & Fernández-Arias, 2021).

Self-assessment is the ability to monitor one's own progress and achieve the set targets (Mould, Bray & Gadbury-Amyot, 2011). Keeping in view the dynamic and active role of students in higher education, it is vital to examine the role of self-assessment by the students in promotion of critical thinking among university students as it is crucial for their success in different spheres of life (Anwar, Dewi & Zen, 2020). There is evidence that self-assessment promotes critical evaluation and thinking. Studies have indicated that self-assessment possibly fosters monitoring of self-progress and development and in this way, students are able to revise their own strategies in learning (Carter, Creedy & Sidebotham, 2017). Scholars have argued that self-assessment enables students to pay full attention to all aspects of their academic performance. This provides them chance to improvise their abilities to further excel. However, despite the large body of knowledge supporting the positive effect of self-assessment and critical thinking skills among students is still needed to be explored (Bailey, Rembold & Abreu, 2020).

## **Self-assessment Skills**

Self-assessment skills are the competencies, traits and personal characteristics that enable students to judge their own abilities and performance to become self-regulated learners (Dhillon & Kaur, 2021).

Studies on self-assessment have found strong correlation between self-assessment and students' better performance (Fahimi & Rahimi, 2015). In the last few decades, self-assessment has been discussed broadly in education field. It has continued to grab the attention of researchers as a factor affecting students' academic progress (Coşkun & Deniz, 2022). Self-assessment can be used as a tool to monitor and evaluate ones' own pace of development in learning. The concept of self-assessment also emphasizes on reflection as an important element of learning as through self- reflection or self-assessment students explore their strengths and weaknesses in the process of learning and ultimately adopt different strategies to improve their performance (Cote & Milliner, 2016).

There is an increased tendency among researchers to investigate the role of self-assessment as a frequently affecting factor of learning (Gadbury-Amyot, Woldt, & Siruta-Austin, 2015). Many researchers examined the effect of self-assessment as an alternative means to evaluate the progress and development of students (Jamrus & Razali, 2019). It is concluded that self-assessment is a good measure to see the various dimensions of students' ability to learn. Studies have indicated the pedagogical benefits of self-assessment for students at cognitive and affective levels such as reflection and self-monitoring abilities (Prayogi & Asy'ari, 2021; Karpen, 2018). Using these abilities, students may evaluate their progress of learning and may improve their academic performance. Studies have further examined the effectiveness of self-assessment among young language learners and reported that the ability of students to self-assess their progress in learning improved over the period manifold (Khoiriyah, Roberts, Jorm & Van der Vleuten, 2015). They further elaborated a positive correlation between students' self-assessment and their self-recognition. Contrary to it, Some studies have found a marginal effect of self-assessment on students' critical evaluation ability (Masruria, 2021). It was further revealed by studies that students were able to report that their confidence level went up because of self-assessment (Lew, Alwis & Schmidt, 2010).

### **Critical thinking skills**

Critical thinking is one of the core objectives and essential learning outcomes of higher education. It is the ability to think independently and propose solution for problems. It is an important aspect of both personal and professional life. It is one of the most coveted abilities demanded by the employers in the current job market (Moeiniasl, Taylor, deBraga, Manchanda, Huggon & Graham, 2022). The current employers are reported to emphasize on higher education institutions to place high stress on critical thinking and analytical reasoning of their students who will be future employees (Molano, Cammayo, Dioses & Dioses Jr, 2020). Although, there

is a high emphasis on the importance of critical thinking in the literature, yet there is less clarity about its application and exact conceptualization (Motycka, Rose, Ried & Brazeau, 2010). Research has interestingly indicated that faculty members do accept the importance of critical thinking and wanted to promote it, but they did not know how to promote it. Thus, there is no consensus among instructors about the concept and meaning of critical thinking and its applications (Nisha & Rajasekaran, 2018).

However, in common parlance critical thinking basically includes disposition and orientation, analytical and problem-solving skills, application of variety of perspectives and general awareness about one's own assumptions, capacity for metacognitions and set of thinking processes (Vasileiadou & Karadimitriou, 2021). Studies have already examined the relationship of critical thinking and students' disposition, perception and learning achievements. In many studies critical thinking has been found to be the learning outcome whereas in other contexts it has been treated as a predicting variable (Stefanova, Bobkina & Pérez, 2017).

The system of education in Pakistan is geared towards epitomizing rote learning and grades. As a result, there is an increasing trend towards developing critical thinking skills to gaining of good grades through memorization of content material. However, on the contrary, researchers have declared critical thinking to be one of the vital aspects of higher education's outcomes yet a challenging one to teach (Nadri & Azhar, 2017). Despite many research studies on critical thinking, its teaching and practice have always remained contested and difficult. To date, few studies have collected empirical evidence on the application of critical thinking in relation to self-assessment and its effect on critical thinking skills of students in the context of higher education especially with reference to Pakistan. This study aims to bridge this gap in the current scenario by examining the effect of self-assessment on critical thinking skills of university students in Pakistan. The present study may contribute to the existing body of knowledge by collecting essential and valuable empirical evidence on self-assessment and critical thinking skills as important constructs of higher education.

### **Objectives of the Study**

Following objectives were set for this study

- To find out students' perception about the effects of self-assessment
- To examine students' perceptions about role of self-assessment for their critical thinking
- To find out students' perception about their critical thinking learning style

- To measure students' perception about effects of critical thinking on their learning

### **Materials and Methods**

The main purpose of the study was to investigate the impact of students' self-assessment on their critical thinking skills in higher education context. The design of this study was quantitative in nature where the researchers adopted descriptive research design for this study. The researchers used this design to investigate the effect of university students' self-assessment on their critical thinking.

### **Population and Sample**

The population for this study consisted of all students enrolled in public sector universities of Malakand division, Khyber Pakhtunkhwa, Pakistan. A cross-sectional survey approach was utilized in the study as the data was collected one time from the sample. A total of 243 students from university of Malakand participated in the study. A convenient sampling approach was used to select the students. This sampling technique is useful in survey studies for collecting data on the basis of willingness and easy availability of the respondents.

### **Instrumentation**

The data were collected through a survey questionnaire consisting of 24 items. The questionnaire was developed based on a Likert type scale. Five options were given to the respondents to share their perceptions ranging from strongly agree (5), agree (4), neutral (3) disagree (2) and strongly disagree (1).

### **Pilot testing**

Before the data collection process, a pilot study was conducted to ensure the reliability and validity of the data questionnaire. The pilot study was conducted on 30 students and these respondents were not included in the sample group of the study. The content validity of the research tool was ensured through experts' opinions. The questionnaire was got validated by four experts from university of Malakand for face and content validity of the scale. The experts proposed different changes in the items, format and errors were identified from grammar perspective. All the recommended changes were incorporated. The reliability co-efficient was measured through Cronbach's alpha value. The overall reliability of the questionnaire was  $\alpha = .741$ .

### Data analysis and Interpretation

The collected data were entered into SPSS version 20 for the analysis and Percentage, Mean Score, Standard Deviation and Chi-Square were computed through SPSS.

**Table 1**

*Students' perceptions about the effects of Self-Assessment (S-A)*

Statements	Mean(SD)	$\chi^2$
S-A encourages students for taking learning responsibilities	3.62(0.58)	1.13*
S-A reduces the assessment load on teachers	3.14(0.73)	57.12*
S-A promotes deep understanding of content of the subject	3.29(0.57)	1.00*
S-A prepares students for their future plan	3.22(0.84)	41.92*
S-A is useful source of feedback of the students' performance	3.36(3.2)	83.20*
S-A enables students to criticize in learning process	2.76(0.77)	47.68*
S-A helps students to develop their judgment skills	3.19(0.8)	40.08*

\*p<.05, S-A= Self-Assessment

The study explored students' perceptions regarding the effects of Self-Assessment (S-A) through a series of statements. The mean scores and standard deviations were computed for each statement, and the corresponding chi-square values were examined. Notably, several significant findings emerged from the analysis. Students perceived that S-A encourages them to take on greater responsibility for their learning. Moreover, S-A was seen as a means to alleviate the assessment workload on teachers. Students also believed that engaging in S-A promotes a deeper understanding of subject content and prepares them for their future plans. Additionally, S-A was valued as a useful source of feedback on their performance. The practice of S-A was noted to enable students to critically evaluate their learning process and enhance their judgment skills. The study underscores the perceived benefits of S-A, with the significance levels denoting the statistical strength of these associations.

**Table 2**

*Students' perceptions about role of self-assessment for their critical thinking*

Statements	Mean(SD)	$\chi^2$
S-A is effective in critical thinking development	3.48(0.66)	85.52*
SA supports students in their critical thinking learning style	3.6(3.16)	1.01*
S-A is important stakeholder for critical thinking	2.95(0.8)	41.04*
S-A develops critical thinking among students	3.02(0.77)	54.56*
Students suspends judgment until all the facts have been considered	3.03(0.7)	95.44*

\*p<.05

Table 2 presents students' perceptions of self-assessment techniques in the teaching-learning process. Respondents acknowledged the effectiveness of self-assessment in fostering critical thinking skills, as indicated by a significant mean score. The alignment of self-assessment with students' learning styles was strongly supported. Students recognized their important role in assessment, highlighting their stakeholder status. Moreover, self-assessment was seen as a catalyst for developing critical thinking skills among students, contributing to a thorough consideration of facts before forming judgments. The results from this table collectively demonstrate the significance of self-assessment techniques in enhancing various aspects of the teaching-learning journey.

**Table 3.**

*Students' perception on their Critical Thinking Learning Style*

Statements	Mean(SD)	$\chi^2$
Critical thinker can process and use data for betterment	3.15(0.72)	75.90
Critical thinking enables students to make choices in learning	3.27(0.8)	57.84
Critical thinker use evidence to support assumption and belief	3.22(0.79)	52.15
Critical thinker examines problems closely from all aspects	3.23(0.79)	52.88
Critical thinker concentrates on alternative mechanisms	3.07(0.76)	52.40
Critical thinker takes on the role of lifelong learning	3.06(0.9)	41.84

\*p<.05

Table 3 provides insights into students' perceptions of their Critical Thinking Learning Style. The table outlines the mean scores and standard deviations for various statements related to critical thinking. These statements include the ability to process and use data effectively for improvement, making choices in learning through critical thinking, employing evidence to support assumptions and beliefs, closely examining problems from multiple perspectives, focusing on alternative solutions, and adopting a lifelong learning mindset. The corresponding chi-square values indicate the significance of the results, with varying levels of agreement among students for each statement. Overall, the findings shed light on how students perceive and engage with critical thinking as an integral part of their learning style.

**Table 4.**

*Students' Perception about Effects of Critical thinking on their Learning*

Statements	Mean(SD)	$\chi^2$
I can learn from success and failure in positive manner	3.07(0.83)	32.72
I can adjust my goals as per changing circumstances	3.07(0.67)	69.84
I can adjust opinions when new facts are found	3.51(3.07)	99.4
I can reject information that is irrelevant	3.01(0.82)	35.28
I can see that critical thinking itself is a long process	3.06(0.78)	68.4

\*p<.05

Table 4 outlines students' perceptions of the effects of critical thinking on their learning experiences. The mean scores and standard deviations are presented for each statement, offering insight into how students perceive the impact of critical thinking. The statements cover various aspects such as learning from both successes and failures, adapting goals to changing circumstances, adjusting opinions based on new facts, discerning and rejecting irrelevant information, and recognizing critical thinking as a continuous process. The associated chi-square values indicate the significance of these perceptions, reflecting the level of agreement among students for each statement. Collectively, these findings provide a comprehensive understanding of how critical thinking influences students' learning journeys.

## Discussion

This study investigated the effect of university students' self-assessment on their critical learning style. It was discovered that in view of



majority of the students there was a positive effect of self-assessment on their critical learning style. The students strongly agreed that self-assessment was a stakeholder in critical thinking development process. Previous studies have reported that students' self-assessment was an important tool that provided the opportunity to students to critically examine the pros and cons of their course of study while enabling them to actively participate in learning process (Jamrus & Razali, 2019). They strongly believed that a strong correlation existed between their self-assessment and critical thinking. The results also indicated a positive relationship between students' judgment and knowing of all relevant facts. Previous studies have found that self-assessment positively contributes towards critical thinking and enables students to take it as a way of processing and using information for bringing improvement and betterment in teaching (Papanthymou & Darra, 2018). Another study indicated that self-assessment was helpful in uplifting the learning process of students (Pandian, Baboo & Yi, 2020). The respondents in this study strongly agreed that there was a positive correlation between critical thinking and improvement in their learning process. They positively replied that a positive relationship existed between critical thinking and their ability of making choices in learning. The results revealed a positive correlation between critical thinking skills and assumptions or beliefs of students. The participants in this study responded that a positive correlation existed between critical thinking and students' ability to examine problems in learning process.

This current study found that self-assessment helped improve critical thinking of students and helped them to actively participate in the learning process. It was discovered through this study critical thinking had positive contributions for students while taking and applying challenges in the way of learning process. The respondents in this study replied that critical thinking played a key role in success and failure of students. Previous research studies have also suggested that both the conditions (failure or success) helped students to improved students' critical thinking skills and, hence, motivated them towards good manners in their lives (Tucker, Efurud & Turley, 2019). This study found that critical thinking and goals adjustment of students had positive association. Similarly, the result of previous research also indicated that critical thinking helped students to adjust their goals in the light of changing environment which increases the chance of achieving the desired goals (Ramiz, 2018).

This study found that critical thinking helped students in the adjustment of opinion after finding new facts. Previous studies have indicated that critical thinking helps students to bring changes in their opinions and adjust them in the light of facts that surface after they (students) study any issue/phenomena (To & Panadero, 2019). Most of the students in this study

strongly agreed that critical thinking helped them to reject the irrelevant information. Researchers have also suggested that the critical thinking makes students, certainly, capable to, even, reject any irrelevant information during their course of study (Cote & Milliner, 2016). Another research indicated that critical thinking is not a time specific process rather it is a process that encompass, comparatively, through a long period of time, if encouraging students to be part of this time-consuming process, then, the learning environment at any level of students' education would, more obviously, give positive results (Fahimi & Rahimi, 2015).

### Conclusion

The study concludes that self-assessment helps students in reduction of load on teachers. It inculcates critical thinking among students, which enables them to raise criticism on learning process. The findings also suggest that self-assessment improves students' critical judgment learning skills further enabling students to uplift more their judgment skill while taking part as an active participant in learning process. The study confirms that at university level self-assessment helps students to improve their critical thinking and, hence, motivates them towards good manners in their academic life. This study indicated that self-assessment helps students in goals adjustment. In this way, the students can adjust their goals considering fluctuating demands of social and academic environment which will increase the chance of accomplishing the anticipated targets.

The findings suggested that students' self-assessment improved their critical thinking skills. Based on the results it can be induced that students' self-assessment is important tool that provides them opportunity to critically examine the pros and cons of their course of study, enabling them to actively participate in learning process. The study reveals that self-assessment and critical thinking have strong positive correlation and have far-reaching positive implications for students in higher education context. Based on the above findings regarding the effect of critical thinking, it can be concluded that critical thinking is not only vital for processing information, but it also fosters abilities among students that enable them to make right and prudent choices.

By opting critical thinking ability, students are more productive who prefer to vigorously engage themselves in the learning environment. Besides, critical thinking leads students to search for alternative mechanism that would help them to address potential problems in the way of learning process. It makes them capable to shoulder responsibilities while handling with challenges in their learning process. The study found that critical thinking is not a time bounded process rather its time span covers whole life

by enabling them to be critical thinkers for all spheres of life which at any level of students' life would obviously give more positive results. Furthermore, it is concluded that the understanding and application of self-assessment skills positively contributes to the critical thinking skills development of students in higher education.

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